

Notice of Allowability

Application No.

10/796,134

Applicant(s)

FUKUSHIMA ET AL.

Examiner

Timothy L Rude

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to preliminary amendment filed 10 March 2004.
2. ☒ The allowed claim(s) is/are 8-17.
3. ☒ The drawings filed on 10 March 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/739,975.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 20040310, 20040505
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

tlr

DETAILED ACTION

Claims

Claims 1-7 are canceled. Claims 8-17 are added.

Terminal Disclaimer

The terminal disclaimer filed on 10 November 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 6,765,643 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

Claims 8-17 are allowed.

The following is an examiner's statement of reasons for allowance:

As to claims 8 and 9, relevant prior art of record did not disclose, alone or in combination, a liquid crystal display element as claimed, comprising: an anti-ferroelectric liquid crystal material with a shifted angle between the extending direction and an optical axis of a batonnet within $\pm 1^\circ$ and wherein the first and second rubbed alignment layers have a surface tension of about 49 dyn/cm to about 53 dyn/cm.

The closest combination is Tanaka, JP 04-371925, provided by Applicant, in view of Nakamura USPAT 5,686019. Tanaka teaches an anti-ferroelectric liquid crystal

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material sandwiched between said first and second electrode substrates covered with first and second alignment layers and which has a thresholdless voltage-transmittance characteristic, wherein said first and second alignment layers are combined with said liquid crystal material so that the angle between the rubbing directions is 6.8 degrees (col. 3, para 0013) (narrow range includes Applicant's shifted angle between the extending direction and an optical axis of a batonnet is within ± 1 degree). Applicant's Figure 3 shows the shifted angle between the extending direction and an optical axis of a batonnet, $(\theta_{OA}-\theta_B)$, is within ± 1 degree for all examples where the angle of the optical axis, θ_{OA} , is less than 7 degrees (half the 14 degree angle between the rubbing directions). Tanaka's angle between the rubbing directions is only 6.8 degrees which is much less than 14 degrees, so the resulting shifted angle between the extending direction and an optical axis of a batonnet might be within ± 1 degree, per Applicant's Figure 3.

Tanaka does not explicitly disclose an element, wherein said first and second alignment layers have a surface tension of 49 dyn/cm to 53 dyn/cm.

Nakamura teaches in Example 1 (col. 16, lines 65-69) the use of a surface tension of 50 dyn/cm to establish uniform alignment and improve contrast (col. 17, lines 25-31). Nakamura also teaches in Example 9 (col. 20, lines 64-67) the use of a surface tension of 49 dyn/cm to establish uniform alignment and improve contrast.

However, it is considered not obvious to apply the teachings of Nakamura to the display of Tanaka because the motivation with respect to the batonnet angle is lacking,

so one cannot reasonably predict the claimed critical feature would be obtained by the combination of Nakamura to Tanaka.

Also, the IDS filed 05 May 2004 contains an English translation of a 06 February 2004 Japanese Notification of Reason for Rejection. That Japanese notice of rejection claims the angle of the optical axis of the batonnet is obvious, however, examiner considers that to be incorrect since it does not take into account the claimed shifted angle between the extending direction and an optical axis of a batonnet within $\pm 1^\circ$.

Lastly, examiner considers the recitation "shifted angle" to not read on substantially zero degrees. In other words, examiner considers the claimed invention is limited to a substantially non-zero angle between the extending direction and an optical axis of a batonnet that lies within $\pm 1^\circ$.

As to claims 10-17, they are directly or indirectly dependent upon claims with allowable subject matter above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Timothy L Rude
Examiner
Art Unit 2883

tlr


Frank G. Font
Supervisory Patent Examiner
Technology Center 2800